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tion upon every phase of questions relating to soil fertility and the science of increasing the productivity of the land while, at the same time, drawing heavily upon its resources. The author is Professor of Agronomy in the University of Illinois.

Fungous Diseases of Plants. With Chapters on Physiology, Culture Methods and Technique. By Benjamin Minge Duggar. xii and 508 pp., 240 illustrations and index. Ginn & Co., Boston, 1909. $2.

This important work is the first book on the subject of American origin. The author is Professor of Plant Physiology in Cornell University. His book is designed for reference use and as a text in the higher schools. It has already been adopted in a considerable number of these institutions. Each disease is discussed as to its occurrence, the nature of the injuries induced, the structure, life history and cultural relations of the causal fungus and practical methods for prevention or control.

Meteorologie. Von. Professor Dr. Wilh. Trabert. Small 8vo. (Sammlung Göschen, No. 54.) Dritte verbesserte Auflage. G. J. Göschen, Leipzig, 1909. 80 Pf.

We are glad to welcome the third edition of Trabert's excellent little volume. The first edition appeared in 1896; the second in 1901. The author has revised the text in order to keep pace with the rapid advance in the science of meteorology, and we note particularly the sections which deal with the vertical decrease of temperature, and with atmospheric electricity. It is safe to say that the careful student of the book will gain a very good idea of the general principles of the science. We commend the book to American readers.

R. DeC. W.

Life of Admiral Sir Leopold McClintock. By an Old Messmate, Sir Clements Markham. viii and 370 pp., portraits, maps, illustrations, appendices and index. John Murray, London, 1909. 15s.

The story of one of the great heroes of British exploration, written by the geographer and Arctic authority, who, probably, was best qualified to render this service to McClintock's memory. The man whose life is here told had natural gifts that enabled him, as an explorer, to strike out new paths and accomplish results by ways of his own devising. The world at large has known him chiefly for his voyage on the *Fox* and his discovery of the fate of Sir John Franklin. In this volume we have not only the history of his achievements but gain also an insight into the facts of his development and the training that helped to fit him for a conspicuous career.

Causal Geology. By E. H. L. Schwarz, A.R.C.S., F.G.S., Professor of Geology at the Rhodes University College, Grahamstown, South Africa. vii and 248 pp., 34 illustrations or figures, and index. Blackie & Son, Limited, London, and D. Van Nostrand Company, New York, 1910. $2.50.

In a series of uncommonly interesting chapters, Professor Schwarz develops his views in regard to some of the most important geological problems. We are invited at the outset to consider five postulates: 1, The rocks on the surface of the earth are in constant motion; 2, The force of cohesion in rocks is insufficient to keep them rigid when in large masses; 3, The area of the surface of the globe is not a diminishing one; 4, The surface of the earth is uniform in average texture throughout; 5, The earth is growing by the addition of meteoric matter, and the composition of the earth as a whole is represented by the average composition of this matter. The subject of the second chapter is the source of the earth's rocks. Other leading topics to which the author devotes entire chapters are: The building of the earth, water and the work of surface water, the soil, the atmosphere, the work of underground water, heat, earth folds, the earth's surface, pressure, cold volcanoes, normal volcanoes, earthquakes, the Archæan rocks; and in chapter xvii we find a summary that concludes with these words:

"Although we have in this book dealt with almost all the large problems in geology, we have in no one case found that the explanation of the cause for the production of the phenomena could be helped in any way by the assumption of a hot interior of the globe. The facts observed in the field or recorded observations explain, without bringing in any unknown factors, the whole of the causes which produced them, if they are allowed to range themselves in proper order. In no one case have we called in the aid of pure speculation, such as the nebular hypothesis. In all cases we have endeavored to arrive at our explanations in the simplest possible way; thus, if meteorites do fall on the earth, it is surely legitimate to take them as average samples of the interstellar matter out of which our earth has grown. Then, when we find that when the volcanic pipes dip sufficiently deep in the earth the same material comes up to the surface, there is enough proof to establish the definite conclusion that the earth's interior must be unaltered meteoric material. If I may use an illustration from the history of literature, the present work constitutes an appeal for a return to rationalism after a period of romanticism. I use these terms in the sense in which they are applied in literary criticism. I do not mean that the theoretical enigmas with which geology is burdened at the present time are pure romance, but that the dominant factor has been theoretical conceptions which have had no basis in fact, and that the fundamental theories of modern geology stand in the same relation to logical deduction from facts as romanticism stands to rationalism in the domain of literature."

We think that many readers will turn with special interest to the brief account of the radium content of rocks, and the following deductions:

"From Joly's figures there can be no doubt left in one's mind that radium has at any rate a very great influence on the temperature observed in rocks, if it is not entirely responsible for all of the heat in the earth's crust. But the work of Strutt [R. J. Strutt, "On the Distribution of Radium," etc., *Proc. Roy. Soc.* Ser. A. vol. *lxxvii,* 1906, p. 479], who initiated this kind of research, is still more positive . . ."

"The heat of the earth's crust we ascribe to the presence of radio-active substances, which, if estimated at radium alone and existing generally only in quantities such as rocks poor in radium indicate, would require an envelope of 45 miles of rock-containing radium. If the radium content of the crust be estimated a little higher, an envelope of 20 or 30 miles would be sufficient. But besides radium, there are the continual movements in the earth's crust, caused by the weighting of the crust by sediments and the lightening of continental regions by the carrying away of rock-waste; these differential movements cause the segments of the earth's crust to move and to rub one against the other, and consequently heat is developed."

Professor Schwarz ascribes the deductions in this work which differ from accepted explanations to his long-sustained association with geological phenomena in the field; and he calls attention to the circumstance that geological problems are presented to the student in an exceptional way in South Africa, or the regions which were the scenes of the activity of the Geological Commission of the Colony of the Cape of Good Hope. Practically the whole country is bare of soil, and enormous gashes sawn through the land by the rivers reveal very large sections and reveal them very clearly. As year after year went by in such "association," the facts presented themselves to Professor Schwarz in an order different from that which one usually finds in text-books, and therefore the theories as to their origin and nature became different from established ones. M. W.

A Brief History of Forestry in Europe, the United States and Other Countries. By Bernhard E. Fernow, LL.D. x and 438 pp. University Press, Toronto, 1907.

This is an authoritative reference volume for foresters and others, summarizing the forest conditions and forest management of Germany, Austria-Hungary, Switzerland, France, Russia and Finland, the Scandinavian States, the Mediterranean States, Great Britain and her colonies, Japan and the United States. Originally planned as a series of lecture notes, it is concise, closely written and hence especially valuable as a reference volume, in spite of the absence of an index.

The larger chapters are devoted, as would be expected, to Germany and the United States. While Germany has had a forest policy since the 14th Century, there was no developed public opinion in reference to the need of forest control in this country until within very recent years. In certain areas, early efforts were made to care for the forests, but they were purely local and the first forestry association was formed in 1876. The chapter summarizes the movement in the United States up to 1907.

As a book for the forester, the volume is a splendid summary of national movements all over the world. It is also a valuable volume of reference for all who are interested in the pertinent and much misunderstood subject of forestry as it confronts the people of the United States. R. E. D.

The New Baedeker. Being casual Notes of an irresponsible Traveller. By Harry Thurston Peck. 352 pp. and illustrations. Dodd, Mead & Co., New York, 1910. $1.50.

The New Baedeker is a volume of conversational notes on selected foreign and American cities, written in a sort of itinerant order. The author does not pretend to give the spirit of the cities so that one may feel the personality of Berlin, Havre or Boston, but describes the items of thought or allusion that come to him in watching the details of life amid which he has been placed in his travels. These running comments are often amusing, occasionally picturesque, but frequently far-fetched and unattractive.

The volume contains little information that would help a traveller and thereby illustrates the difference—hardly a sufficient word—between the New Baedeker and the invaluable Baedeker which is world-known and world-used.

R. E. D.